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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,562	06/26/2003	Karai P. Premnath	D/A0714	4702
25453	7590	08/10/2004	EXAMINER	
PATENT DOCUMENTATION CENTER XEROX CORPORATION 100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR ROCHESTER, NY 14644			HSIEH, SHIH WEN	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,562	PREMNATH ET AL.	
	Examiner	Art Unit	
	Shih-wen Hsieh	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-10, 17-21, 24, 26, 27 and 30 is/are rejected.
- 7) ☒ Claim(s) 5-7, 11-16, 22, 23, 25, 28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6-26-03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 5, [0022], line 1, please label "310", the single cleaning roller, in fig. 1 in the proper place. Line 7, the word "treated" after "the cleaning roller" seems an extra, suggesting delete it.

Page 6, [0025], line 6, please label "320", the squeegee roller, in fig. 1 in the proper place. Lines 7-8, please indicate the pinch valve 330 in fig. 1. Line 9 should valve 210 be valve 502, because tracing pump 400 to holding tank 200, valve 502 is in the route of tracing.

Page 7, [0027], line 1, please change print heads 300 into print heads 30.

Claim Objections

2. Claims 24 and 28-30 are objected to because of the following informalities:

The recitation of "the cleaning roller" and "the roller" form a minor lack of antecedent basis problem. A "cleaning element" was used before. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 8-10, 17-21, 24, 26, 27 and 30 are rejected under 35 U.S.C. 103(a) as being obvious over Berg (US Pat. No. 6,550,891 B1).

The applied reference has a common assignee (Xerox Corp.) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the

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subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2). Both the instant application and the Berg reference deal with using a cleaning element consisting sections of cleaning devices, each used for its own print head.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-4, 8-10, 17-21, 24, 26, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg (US 6,550,891 B1).

In regard to:

Claim 1:

A cleaning apparatus comprising:

a cleaning element (100, fig. 1), refer to col. 2, lines 16-19;

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a synchronizer that places a predetermined section (102 or 104, fig. 1) of the cleaning element in alignment with a respective ejector (202 or 204, fig. 1), refer to col. 2, lines 25-42.

The device of Berg DIFFERS from claim 1 in that it does not teach:

a synchronizer.

A synchronizer is merely a device, which allows one portion of the wiping mechanism (100) matches with a corresponding print head between/among a plurality of print heads, such as in Berg's case, the locations of each of the wiper blades (102 and 104) are so disposed on the plate (101) that their wiping path will synchronize with the dispositions of the heads (202 and 204).

Therefore it would have been an obvious matter that the arrangement in Berg's fig. 1 implies the function of the synchronizer such that these arrangement will allow each of the wiper blades of the wiping mechanism (100) servicing the print heads (202 and 204) respectively.

Berg further teaches:

an actuator that moves the cleaning element against the ejector with which the respective portion of the cleaning element has been aligned to clean the ejector. Examiner's note: the dotted gears in fig. 1 corresponds to the actuator, refer to col. 3, lines 29-48.

Claim 2:

Berg further teaches:

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wherein the cleaning element (100) services at least two ejectors (202 and 204) and a respective portion of the cleaning element is dedicated to each of the at least two ejectors, refer to fig. 1.

Claim 3:

Berg further teaches:

wherein the at least two ejectors (202 and 204) are print heads of an ink jet printer, refer to the title.

Claim 4:

Berg further teaches:

wherein the at least two ejectors comprise at least four ejectors in a color ink jet printer, refer to fig. 1, where the four colors are C, M, Y, and K.

Claim 8:

In an inkjet printer including a plurality of print heads, a print head cleaning apparatus comprising:

a cleaning element for the plurality of print heads;

a synchronizer that places a predetermined section of the cleaning element in alignment with a respective one of the plurality of print heads; and

an actuator that moves the cleaning element against the plurality of print heads to clean the respective print head with which the respective portion of the cleaning element has been aligned.

Rejection:

The recitations are the same as those in claim 1, except an ink jet printer was not recited in claim 1, however, Berg's device is for the ink jet printer,

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therefore, this claim is rejected on the basis as set forth for claim 1 discussed above.

Claim 9:

The device of Berg DIFFERS from claim 9 in that it does not teach:

wherein the cleaning element services at least four print heads and a respective portion of the cleaning element is dedicated to each of the at least four print heads.

Berg's two heads (202 and 204) contains four colors, which corresponds to four heads each contains one color, both structures are widely used in color ink jet printer, please refer to MPEP 2144.03, in re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

Therefore it would have been an obvious matter to use either two heads having four colors or four heads also having four color to make up as an essential portion of an ink jet printer, and both types equally serve to produce a color image.

Claim 10:

wherein the inkjet printer is a color inkjet printer and the at least four print heads are arranged in the color ink jet printer.

Rejection:

This claim is rejected on the basis as set forth for claim 9 discussed above.

Claims 17-19:

A method of cleaning a plurality of ejectors comprising:

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providing a cleaning element;
allocating sections of the cleaning element for use with respective
ejectors;
aligning an allocated section of the cleaning element with its respective
ejector; and
moving the cleaning element against the respective ejector with which the
respective portion of the cleaning element has been aligned, thereby cleaning the
ejector (claim 17).

The apparatus of claim 17 wherein the plurality of ejectors are print heads
of an ink jet printer (claim 18).

The apparatus of claim 17 wherein the plurality of ejectors comprise at
least four print heads in a color ink jet printer (claim 19).

Rejection:

The steps in this method claim are deemed to be made obvious by the
functions of the structure in the combination discussed above for claims 1, 3, 7
and 8.

Claim 20:

Berg further teaches:

A method of cleaning at least one ejector comprising:

providing a cleaning element (100, fig. 1);
allocating sections (102 and 104, fig. 1) of the cleaning element (100, fig.
1) for use with respective ejected fluids (C, M, and Y, fig. 1) that the at least one
ejector (204, fig. 1) ejects;

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aligning an allocated section (104, fig. 1) of the cleaning element (100, fig. 1) with an ejector (204, fig. 1) from which its respective ejected fluid (C, M, or/and Y) has been ejected; and

moving the cleaning element (100, fig. 1) against the ejector (202 or 204, fig. 1) with which the respective portion (102 or 104, fig. 1) of the cleaning element (100, fig. 1) has been aligned, thereby cleaning the ejector.

Claim 21:

The device of Berg DIFFERS from claim 21 in that it does not teach:

wherein the ejected fluids possess properties that, were the ejected fluids to be mixed, would produce undesirable results.

All of the C, M and Y ink have properties, and when they eject toward an object, color mixing will occur.

Therefore it would have been an obvious matter that the color mixing can be considered as an undesirable result.

Claim 24:

establishing an initial position of the cleaning roller, establishing an initial position of the print head, and ensuring that a proper allocated section of the cleaning roller be aligned with its respective print head when print head and cleaning roller collide.

Rejection:

The initial position of the cleaning roller can be seen as the position shown in fig. 1, and the initial position of the print head also can be seen as the position shown in fig. 1, the allocation of the sections (102 and 104) of the cleaning

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element (100) are such that when the plate (101) rotates, wiper section (102) of the cleaning element (100) will clean ejector (202) and wiper section (104) of the cleaning element (100) will clean ejector (204) as the dashed curved line indicated.

Claim 26:

The device of Berg DIFFERS from claim 26 in that it does not teach:
associating a translation sensor with the print head.

A translation sensor associated with a print head is well known in the art, said translation sensor can be an encoder used to determine the position of the carriage, or a home detector, which is used to detect/sense when the carriage is in the home position, please refer to MPEP 2144.03, in re Malcolm, 129 F.2d 529, 54 USPQ 235 (CCPA 1942).

Therefore it would have been an obvious matter that a translation sensor can be used in association with the head such that the function of the sensor is able to tell the position of the head.

Claim 27:

wherein the translation sensor is a linear encoder.

Rejection:

This claim is rejected on the basis as set forth for claim 26 discussed above.

Claim 30:

Berg further teaches:

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providing a cleaning sump (106, figs. 1 and 3) into which the roller travels and deposits material cleaned from the at least one ejector, refer to col. 2, lines 43-53.

Allowable Subject Matter

6. Claims 5-7, 11-16, 22, 23, 25, 28 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

In regard to:

Claims 5-7 and 11-13:

The primary reason for the allowance of claims 5-7 and 11-13 is the inclusion of the limitation of wherein the cleaning element services at least one ejector applying at least one fluid that possesses at least two properties and respective portions of the cleaning element are dedicated to each of the at least two properties. It is this limitation found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Claim 14:

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The primary reason for the allowance of claim 14 is the inclusion of the limitation of wherein the plurality of print heads ejects at least one fluid that possesses at least two properties and respective portions of the cleaning element are dedicated to each of the at least two properties. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 15:

The primary reason for the allowance of claim 15 is the inclusion of the limitation of wherein the synchronizer comprises an actuator responsive to a rotary encoder associated with the cleaning element. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claim 16:

The primary reason for the allowance of claim 16 is the inclusion of the limitation of wherein the synchronizer comprises an actuator responsive to a light sensor associated with the print head. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 22 and 23:

The primary reason for the allowance of claims 22 and 23 is the inclusion of the limitation of wherein the ejected fluids comprise ink and the properties

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comprise colors so that a respective portion of the cleaning element is dedicated to each color of ink. It is this limitation found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Claim 25:

The primary reason for the allowance of claim 25 is the inclusion of the step of associating a rotary encoder with a cleaning roller motor. It is this step found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior.

Claims 28 and 29:

The primary reason for the allowance of claims 28 and 29 is the inclusion of the method step of providing a light sensor associated with one of the cleaning roller and the print head. It is this step found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

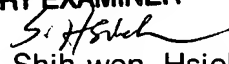
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S D Meier can be reached on 571-272-2149. The fax


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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH
PRIMARY EXAMINER


Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH

Aug.4, 2004